# Advanced Work Zone Traffic Control Training Participant Exam

Name: Date:

Final Grade: Course Location:

Circle the best answer to the following questions (2.5 points each):

1. When designing work zones, which of the following should be the designer’s primary concern?
   1. The needs of the contractor.
   2. The needs of the drivers, other road users and workers.
   3. The cost of the project.
   4. The duration of the project.
2. In which of the following would you find typical traffic control layouts for use in work zone applications in Virginia:
   1. Book of Standards.
   2. Virginia Work Area Protection Manual.
   3. Book of Specifications.
   4. ATSSA Quality Standards for Work Zone Traffic Control Devices.
3. How many feet will a motorist travel during their perception reaction time (in a work zone) at 60 mph?

A. 88.

B. 110.

C. 276.

D. 441.

1. Approximately what percentage of all roadway crashes is considered to be due to “human error”?

A. 13%.

B. 34%.

C. 93%.

D. 100%.

1. In a work zone, a driver’s perception reaction time (PRT) is estimated to be:
   1. 2.5 seconds.
   2. 5-7 seconds.
   3. 1.47 feet per second.
   4. 88 feet per second.
2. In designing for the driver, which of the following you should not do?
   1. Satisfy the needs of the drivers so they respond more efficiently and safely.
   2. Trick the driver into doing what we want.
   3. Provide the driver with clear and positive guidance.
   4. Provide the best traffic control possible, in a uniform manner.
3. The following are considered parts of a temporary traffic control zone:
   1. Advance Warning Area.
   2. Transition Area.
   3. Buffer Space Area.
   4. Work Area.
   5. All of the above.
4. Of the following elements of the roadway transportation system, which of the following is the most variable and difficult to control?
   1. The roadway.
   2. The vehicle.
   3. The driver.
   4. None of the above.
5. The minimum length of the longitudinal buffer space depends on:
   1. Stopping sight distance as a function of speed.
   2. The length of the workspace
   3. The time of day.
   4. The duration of the project.
6. The length of the Longitudinal Buffer in a lane closure on a multilane secondary roadway posted 55 mph is :

A. 225 – 260 feet. B. 310 – 320 feet. C. 500 - 530 feet. D. 450 – 475 feet.

1. The work duration of a Short-Term Stationary work zone is:
   1. An activity that moves intermittently (0-15 minutes) or continuously.
   2. An activity that occupies a location from 15 minutes up to 1 hour.
   3. An activity that occupies a location more than 3 consecutive days.
   4. A daytime activity that occupies a location for more than 1 hour, but less than 12 hours.
2. Which of the following require special consideration by the TCP designer?
   1. Senior citizen retirement home.
   2. School zones and playgrounds.
   3. Steep down grade.
   4. All of the above require special consideration.
3. When designing and installing a work zone, motorists speeds affect the following:
   1. Distance between warning signs, length of merging taper, spacing of cones.
   2. How many flashing lights required, number of arrow panels needed, height of cones?
   3. The location and duration of construction.
   4. Number of signs you need, and where you place them.
4. The “Clear Zone” for an ordinary road with speed posted at 55mph is:
   1. 4 feet.
   2. 20 feet.
   3. 25 feet.
   4. 27 feet.
5. The suggested sign spacing for signs on rural 45 m.p.h. roadway is:
   1. 100 – 200 feet.
   2. 500 – 800 feet.

C. 350 – 500 feet.

D. 1300 – 1500 feet.

1. Which of the following are used in unmanned work zones?
   1. Cones – Group 2 Channelizing Device.
   2. Post-mounted signs.
   3. Drums – Group 2 Channelizing Device.
   4. Traffic Control Plans.
2. On roads that are not limited access, the formula for determining shifting tapers is :
   1. L x .75
   2. L minimum.

C. 1/3 L.

1. 100 feet per lane.
2. A "Merging" Taper is used to:
   1. Change alignment of an existing lane.
   2. Move traffic out of a normal travel lane.
   3. Close off a shoulder.
   4. Allow traffic to return to normal travel lanes.
3. For a 50-mph roadway, which of the following tapers is the shortest?
   1. Lane merging taper.
   2. Flagging two-way traffic taper.
   3. Lane shifting taper.
   4. Shoulder taper.
4. Regardless of the posted speed, the minimum length of a merging taper on a limited access highway is:
5. 330 feet.
6. 660 feet.
7. 800 feet.

11. 1000 feet.

1. What is the minimum length of a merging taper required to close a 12-foot lane on a 55 mph multilane roadway?
   1. 660 feet.
   2. 600 feet.
   3. 720 feet.
   4. 50-100 feet maximum.
2. A 1,000-ft long tangent is part of a traffic control plan. If the spacing between the cones is 40 feet, how many cones (minimum) would be needed?

A. 10.

B. 15.

C. 26.

D. 30.

1. The two standard sizes of arrow panels which should be used on Virginia roadways are:
   1. Type A and B.
   2. Type B and C.
   3. Type A and C.
   4. Type B and D.
2. Pavement markers are installed on centers in all transition areas. A. 10’.

B. 20’.

C. 40’.

D. 80’.

1. The formula used to determine when barrier service is required to protect a fixed object considers:
   1. Cost of barrier, pavement marking, and marking eradication.
   2. Average Daily Traffic (ADT), exposure time, and length of the hazard.
   3. Weight of barrier, effect on traffic, and barrier deflection.
   4. Number of laborers, delivery trucks, and delineator panels.
2. The barrier transition slope ratio for concrete barriers placed in a right lane closure operation on a limited access highway with 50,000 vehicles per day and posted 60 mph is:

A. 28:1.

B. 20:1.

C. 19:1.

D. 17:1.

1. None of the above.
2. Which projects should have an approved Traffic Control Plan?
   1. Only projects on the State’s highway system.
   2. Only long-term projects.
   3. Only projects on high-speed roadways.
   4. Only on Category C projects.
3. When arrow boards are used to close multiple lanes only 1 may be used in:
   1. Shifting tapers.
   2. Nighttime lane closure.
   3. High-speed freeways lane closure.
   4. Each closed lane.
4. For a double lane closure on a 6-lane, 65 mph, 12-ft lane freeway, two merging tapers are required. What is the minimum separation between the two tapers?
   1. 1000 feet.
   2. 2000 feet.
   3. 1580 feet.
   4. 780 feet.
5. Which of the following statements is not a “constructability” issue?
   1. The access requirements of the workspace.
   2. Drainage.
   3. Room to maneuver equipment.
   4. The construction diary.

Circle T for True or F for False at the end of each statement (2.5 points each):

1. In the MUTCD (and the Virginia Work Area Protection Manual), the term "shall" is considered a permissive condition. T or F
2. The Buffer Space Area is set aside for the placement of equipment, materials, and vehicles to keep the work area free. T or F
3. The traffic space is the portion of the highway in which road users are routed through the work area. T or F
4. The work duration of a “short-term stationary” work zone 15 minutes to 1 hour.

T or F

1. The five basic requirements that traffic control devices should meet to be effective are: fulfill a need, command attention, convey a clear - simple meaning, command respect, and give adequate time for response. T or F
2. The taper length criteria chart is found on page 6F-10 of the 2011 Work Area Protection Manual. T or F
3. The proper placement of arrow panels in lane closures is halfway up the taper in the middle of the closed lane. T or F
4. Black traffic paint is an acceptable form of pavement marking eradication.

T or F

1. A Truck Mounted Attenuator is required when closing a lane on a multi-lane roadway posted 35 mph, and on all limited access highway lane closures.

T or F

1. TTC-13, pages 6H-34 and 6H-35 is an inside lane closure on a four-lane roadway.

T or F